American BEE Journal

SEPTEMBER 1939

VOLUME 99
NUMBER 9

Dedicated To The Progressive Future Of The Bee Industry

Honey Sandwiches

From American Honey Institute. Made with honey and butter. Recipe: ½ cup of butter, ½ to 1 cup of honey. Cream butter well. Add honey gradually. Beat thoroughly. Place in refrigerator. Delicious on toast, hot breads, waffles and for sandwich fillings.

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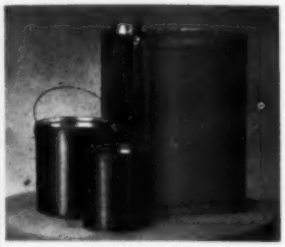

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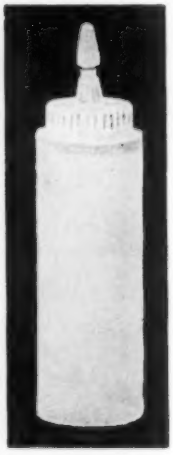

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The American Bee Journal Hamilton, Illinois

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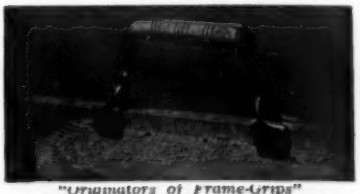

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Swing to Sideline

Yes sir, back again. The ladies ran us ragged for extra copies of the August Swing to the Kitchen. So the idea of variation in Swings and bringing in "strangers" like the kitchen is popular. The Swing to Other Lands in June brought fan mail; so did Pollination in March. The symposium plan on loaders for the Commercial Swing in July also went over big. Sideline goes way back to May. The idea of keeping a "skeleton" for the departments keeps in enough reading to be satisfactory. The symposium plan finds its way into the Sideline Swing in this issue. Be prepared for something brand new for every one in October.

JUST WHY DO BEES SUPERSEDE? . . .

This question came from James E. Davis, Jr., Navasota, Texas. The resulting article published here is an example of the material that can be obtained through reader participation. So if you have a problem with which you want help, send it in and let other beekeepers give their opinions and experience.

From James E. Davis, Jr.
Navasota, Texas

In our case, in queen rearing operations, supersedure could begin with the starter nucleus. We begin from a swarm box with bees taken from colonies in outyards. Since the bees come from two or more colonies they first have to get used to one another to form a working unit or colony on their own. There may not be enough young bees to feed the grafts so they get a poor start.

It could be in the finishing colony for there again it takes young bees. At this point you are working above an excluder and the colony may not be in as good condition as it should be. The bees not only have to feed the grafts but there is young open brood to take care of too. Your finishing colony has to be a power house of young nurse bees.

It could be the breeder stock. Many queen breeders select their breeder queen from outyards each year. She is well shaped, has a good color and has been the head of a good producing colony. However, this history is the result of a number of years' observation and now the breeder queen is kin folk to every drone in the nucleus yard. Nature takes care of this to a point but in due time inbreeding is bound to show in some poor characteristics— queens and workers with deformities. Under these circumstances the bees try to replace with supersedure.

Of course it could be in the graft, in the size of the larvae used, the methods of handling from start to finish; so the breeder has to be alert all the time.

Finally the weather plays a part. It may hurt from start to finish. If it turns cold and the breeder has just prepared a new swarm box or a starter nucleus, it just doesn't do well. Even after the cells are sealed and ready for the nucs, they may be chilled and the queens emerge without wings or with bad legs. Wings seem to be the last to be developed and when they are chilled there just isn't good development. Too, a bad, cold wet spell at mating time makes a mess of things. No queen is safe from the weather until she is in her new home and laying in the comb.

Also queens that are shipped may get too hot or too cold. There are many other causes I am sure.

Wm. M. Weber
Huntington, Indiana

I have purchased package bees at different times. I like them to arrive the last of April, here in Indiana. When they are installed about May 1st, we usually have a flow at about the same time. I put the packages on drawn combs and keep the feeder cans filled. I give the bees a light drenching of sugar syrup and shake them out on the bottom board, then sprinkle the queen and the attendant bees in the queen cage and place the queen in the cage on top of the bees that I have shaken into the hive.

Then I do not disturb them for ten days except to refill the feed cans. I do not even smoke them when I do that. If they have started supersedure cells by then, the damage is done. The packages will never amount to much if they do have supersedure cells and if you look before ten days are over, the bees might make up their minds the queen is no good, especially if you have disturbed them to the point where the queen becomes excited.

If you install packages about April 15th and the weather is bad, the bees cannot fly even though the feed can is full of syrup. The worker bees have plenty of time to size up their new queen and may do away with her. Whereas, if there was a flow coming in, they would be busy and happy and have less time for criticism of their queen.

I have always had good results with packages installed May 1st and I do not remember having any swarming fever the first season.

In overwintered colonies I try to requeen at least every two years. If I find a failing queen, I replace her at once. Bees are smarter than man. Sometimes they draw queen cells for supersedure and we wonder what can be the matter with the queen. I always give my bees right-of-way in any decisions they have made for I am sure they know more than I do.

I ordered six Italian queens one fall and put them in the hives in a fairly good flow. When I saw the queens I was much disappointed. They were small and inferior. I lost four out of the six. The breeder replaced them.

One of my beekeeping friends lets his bees do their own requeening through supersedure. That may be all right if you do not have neighbors near with different bees.

Why do bees supersede some years more than others? That depends on the honeyflow and the weather. When

a good queen goes through one good season, she will not be as serviceable next season. I had an old-time friend say at a bee meeting that he had a nine-year-old queen that did as well in the ninth year as she had done the first eight. I find it hard to believe. Perhaps the colony swarmed when he wasn't around.

I do not wonder that so many inexperienced beekeepers get into trouble when they make a practice of destroying queen cells whenever they see one. They do not recognize a supersedure cell. Finally, I know a low-priced queen isn't always the cheapest. The new hybrid queens are certainly worth the money.

J. E. Hastings
Birch Hills, Sask., Canada

Supersedure is the natural method by which a colony replaces a failing or inferior queen. Causes of the failure may be age, injury, disease, or the actual poor quality of the queen herself.

I am presuming that Mr. Davis in his request refers to queens being superseded during the first year. If a queen is otherwise healthy, the cause of supersedure can be summed up quite simply as inferior rearing methods.

I have raised queens in various ways and checked the results for several years. Those reared by the methods commonly used in much of the commercial queen rearing cannot possibly be consistently of top quality.

This is quite evident up here in the North where most of the colonies are headed by queens received in packages. By the middle of August or after several months of service, there will only be 10 to 70 per cent of the original queens present. Many queens last only one to three weeks and those that are not replaced may be of inferior quality and never able to produce a strong colony to gather a normal crop.

Queens reared properly will last two to four years under our climatic conditions and still maintain good colony strength.

Ben L. Patterson
Hereford, Texas

In my experience, supersedure is most likely to take place when shipped in nuc-reared queens are used. My theory is that these queens, especially after laying several cycles of eggs in a small hive, will never expand satisfactorily in a large hive. When bees are aware of the limitations of the queen, they supersede her and often the resulting queen is a superior one.

A Visit From Nora Baldensperger

Picture taken in front of ABJ office, Miss Baldensperger in front row second from left. Her father, affectionately known as "Pere Baldens," was a beekeeper, student and world traveller at Nice, France and she often went with her father. Nora taught school for years. They have been especially noteworthy for their studies of races of bees. Others in picture: top row, left to right; R. H. Dadant, Carroll Swanson, Roy Grout, GH. Bottom row, M. G. Dadant, (Miss Baldensperger), Mrs. Grout, Henry Dadant.

Wanted:

Data For Scientific Work

K. O. Stingily, M.D., Stingily Skin and Cancer Clinic of Meridian, Mississippi, has requested us to notify our readers that they would like to have from readers answers to the following questions which they might use in some way in follow-up or in classifying information.

The questionnaire would be as follows:

1. Have you had cancer? (a) skin (b) other. 2. Have you had tuberculosis? 3. Have you had diabetes? 4. Have you had eczema? 5. Have you had rheumatism? 6. Have you had arthritis?

If readers are interested in complying with Dr. Stingily's request, we suggest that they answer the questions and mail directly to the address above.

Royal Jelly as Tumor Deterrent?

From the Department of Agriculture at Guelph, Ont. comes a 4-page reprint from British Nature Magazine, VOL. 183, May 2, 1959, pages 1270-71, giving a report on the part of G. F. Townsend (O.A.C.) and his associates, J. F. Morgan and Barbara Hazlett. It is entitled, "Activity of 10-Hydroxydecenoic Acid from Royal Jelly against Experimental Leukemia and Ascitic Tumors."

Their experiments indicate that "admixture of royal jelly with tumor cells BEFORE INOCULATION completely suppresses the development of transplantable mouse leukemia and the formation of ascitic tumors in mice."

The experiments were repeatedly checked with over 1,000 mice involved.

However, it is true that their experiments were where the tumor cells had been previously injected before the jelly preparation was given. The results are inconclusive and need to be pursued further. On the inoculation with the combination of jelly and tumor cells, the results were definitely positive. In most instances check mice not given the royal jelly, died in a few days.

Here is positively an entering wedge into a conclusion on just what the value of royal jelly may be.

Illinois Disease One Per Cent

Disease percentages continue to drop. Illinois is just reporting a one per cent infection in inspections to July 1959. Other states are similarly reducing the incidence of disease, far below previous years.

Vacuum Rig For Removing Bees

by FRANK M. CANTRELL

Colony of bees in a garage; exposed, ready for the vacuum rig and the knife.

The illustrations here picture a vacuum rig for removing bees from a house, bee tree or any undesirable location.

The principle is the same as that of a vacuum cleaner which is designed to pick up or remove dust, dirt or trash. The vacuum in the hose is created by a pump which has a fan blade revolving at a high speed so that dust, dirt and trash are picked up by the hose and drawn into the pump, then exhausted into a bag.

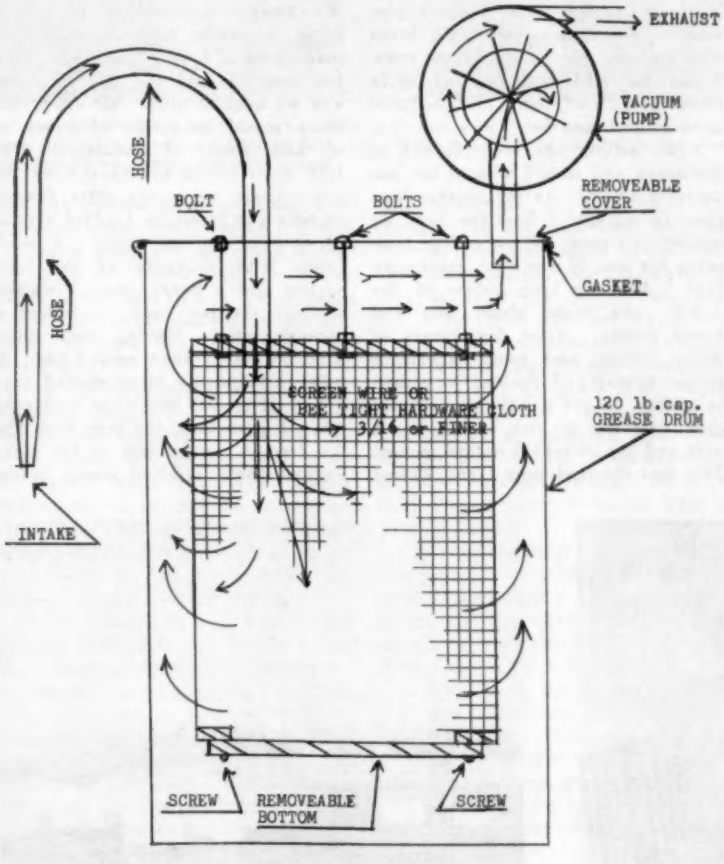
Bees, however, passing through a vacuum pump would be drawn into a sticky mass and would clog the pump. The principle of the vacuum rig for bees is to place the bag or trap ahead of the pump so the bees would be trapped before reaching it. Instead of using a bag in the rig, a screen wire cage, encased in an airtight drum, is used so the air can freely pass through to the pump. The bottom of the cage is detachable for removing the bees after the return home. Details of the equipment are given in the drawings.

Georgia

Author's grandson with vacuum cleaner, rigged and ready for removing bees from undesirable location.

Rigged vacuum showing the screen cage partially removed.

Left, the screen cage showing removable bottom for taking out bees. At right, five disks of wax from the garage.



SCHEMATIC DRAWING OF VACUUM RIG

TALKING YOUR PRODUCT DOWN

by LYNN REYNOLDS

One of the first things I learned when I had a few tons of honey for sale in California was that eucalyptus was no good—and this meant any honey raised where and while eucalyptus was blooming, or after it had bloomed. I accepted this fact at a cost of $50.00 or so even after I had eaten and liked it and cured a stubborn cough to my satisfaction with it. Since then, I have heard it from beekeepers and customers whom I knew had eaten and liked it. How a saying gets around!

In the winter of 1957 my few colonies of bees were in A No. 1 condition when a warm February brought the eucalyptus nectar on the run. The comb honey I produced was nearly pure eucalyptus except for some nearly black but good tasting honey that was stored in the brood nest in the fall. The honey was light amber with a dense aroma, comparable to buckwheat.

The eucalyptus flower has an acid tang that cuts the raw sweet flavor and blends deliciously with butter or oleo.

P. T. Barnum could have gotten $5.00 per pound for it and certain beekeepers could sell it for sourwood undoubtedly. But the jobbers have decided that eucalyptus is no good. The beekeepers take this lying down even though the customers go for it like hot cakes.

STEPS UP THE LADDER

by DONALD BARBER

As the sun rose slowly over the horizon of our quiet Arkansas town, two sleepy boys took their packages of bees and hives to the peach orchard. You see, my brother Royal, 14 and I, 12, were not ready for the bees when they arrived Saturday afternoon. We had to work all night making hives, frames and installing foundation. We had a good feeling as we placed the bees in the hives, for at last we were in the bee business, or should I say that the bee business was in us.

With just our mother, some might suppose that we were left without training in such things as science, mechanics and nature. This was not the case for in all three of these, our mother was very well informed and interested. All night that first night, she helped us plane, saw, and hammer, and for the following months she was as interested in what went on in the beehives as we were.

We knew nothing about bees and decided to do something about it. We ordered a copy of ABC and XYZ and began talking to those who kept bees. Everybody had advice about bees, but all too many times, their own hives were dead and full of moth. There was a man north of our town of Yellville by the name of Hoyle, but nobody knew for sure what his name was or just where he lived. He was supposed to keep bees, but most people thought him to be a crackpot. My mother, brother, and I set out one day to find him for we concluded that if he produced honey and made money at it, he was the man to see. We did find him and he gave us the kind of start that the beginner needs, watching someone who knows their business. The reason he was thought to be a crackpot was that he took pride in NOT letting his hives swarm where others measured their success by the number of swarms they had from each hive.

The following year, we moved to southern Calif., leaving the bees behind. My brother and I started collecting swarms that spring from water jugs, buildings, under houses and from open limbs, for there were no large trees for them to build in. Swarms were wherever you might look. At this point my brother and I had a division of philosophy which exists some even today. I favored a few hives and many bees, while he favored more hives of fewer bees. As new swarms came into our possession, I put mine with old hives and he used his to start new ones. When we sold out, he had more hives than I had, but I had produced more honey than he.

After selling out, we returned to Arkansas and soon I was in the bee business again. As my brother was then in college, I had the bees by myself this time. When college time came for me, it was with reluctance that I left my bees, copies of the A.B.J., and books about bees and honey plants. After four years of Bible college, and some experience in the ministry, I decided to return to college to get a Liberal Arts degree. Having no rich uncles, but a wife and boy instead, I needed money. This was the first time I had viewed beekeeping as a possible living for myself.

My wife's first experience with bees would have been her last except for her confidence in my judgement. I was going to take some bees out of the church where I preached. After climbing up to the top of the belfry, I dropped a rope to the ground for her to attach a bucket. Marilyn had a low necked blouse and long flowing hair. Honey dripped on her, and the bees became very much "attached" to her by way of their stingers. She stood her ground and at last we had some bees in a hive and a dishpan of messy honey. I stayed up all night trying to melt the wax and get the honey that way, but I got it too hot and flashed. It was so dark from the smoke that I thought the lights had gone out. We finally managed to collect 10 hives in 1953. Late in August, a man asked if I would help him cut a bee tree. I said yes, for the bees, and we went to work. He knew that there would be a tub of honey so we took plenty of containers. The tree itself would not have filled the tub. There were only three frames of bees and brood, so I added a little to each of my ten hives. A week later, with thoughts of the next spring and a honey crop, I walked through the bee yard. I noticed a strange odor. Having read quite a bit on bees, I knew what I had. A quick look at the hives showed that I had given all the hives foulbrood when I gave them the bees from the bee tree. A return trip to the sight showed badly infected combs beside

Spring inspection with son James. Also feeding (see jar lid on cover in back).

A source of income is pollination. Weir Fruit Farm. You can see the115 acre orchard in the background.

Bees are intelligent but I couldn't let them think they were smarter than I so I went to work with the dress of an intellectual beekeeper. Really the picture is about right for they provided the means for a college education.

the tree, scales, stretchy brood, and a rotten mess. Well, with this, the summer's work was down the drain. We were not discouraged for it did teach us a good lesson on disease. Since then, after destroying all ten hives, we have had 100% clean inspection.

1953 and 1954 might be called our years of disaster. I just told how we lost our hives in '53 but '54 was little better. We bought thirty hives in "good" equipment. The frames turned out to be nothing more than wall lath and the combs were all cross combs. Everything had to be transferred to new hives. Thus, the honey crop for '54 was lost.

Since I wanted to return to college in 1955 and up to now the bees had done nothing except cost money we wondered just what to do. We kept them and had a good winter. In May of 1955 we brought 25 hives from Earl Robinson of Olwein and with these we started the honeyflow for comb honey and ours for chunk. The white clover and basswood had been waiting for us and we averaged about 125 lbs. per hive and made 25 divisions.

Each year, our number of bees and production of honey has increased. In addition, last year we started some pollination work. We took one contract for 50 hives of bees at $5.00 per hive. This was 110 miles from the bee yard, but it proved very successful: The place was Weir Fruit Farms, Gladstone, Ill. and a very fine place to buy fruit. They proved very cooperative in such things as spraying and other management of the orchard while the bees were on location. We hope to find more places to do this kind of work.

The last weeks of school and first weeks of bee work occur at the same time and we had to find some ways to handle the work with the least amount of time involved. I have three things that help a lot.

1. Each cover has a hole in it the size of a feeder cap, cut with a hole saw. This makes feeding only a matter of removing the cap, cleaning the holes out, and screwing on a jar of feed. When not used for feeding, the bees seal it up.
2. Very early in the spring each hive is thoroughly cleaned, bottom, top, frames, and frame rests. This saves time later.
3. Rather than worrying about swarming before school is out, all strong hives are divided by placing a screen between the two hive bodies and the one without the queen is given a young one. Each half is given another hive body, if and when it needs it. At the start of the honeyflow, only two bodies and the young queen are left, the other being moved as an increase.

When I graduated from the State University of Iowa, June '58, I had to choose my future . . . that is, teaching, preaching, or beekeeping. I chose all three. I still plan to preach for those churches that can't afford a full time minister, teach in the winter and work with the bees in the summer. However, if I can find a job in the Southwest that is either bee inspection or research, I will consider going into beekeeping altogether and spend my Sundays working with small churches.

Comb and chunk honey have become our specialties. I feel this can be marketed directly by the producer and cut down the middle cost.

Speaking of marketing, either we are over producing, or underselling our product. I prefer to say that we are underselling. If this be true, there are two dangers to be avoided. It is a great mistake to sell honey in the kind of expensive containers that lead the public to view honey as a luxury item. This will only lead to a smaller, not larger consumption of honey. The other extreme is marketing our product below cost of production. We had in one town a competitor who would sell the last case of honey on the truck if he had to take half price for it, which he has on some occasions. We should impress the public with the fact that honey is a good food, well packaged and fairly priced.

Another mistake in the Midwest, is failure to follow up all the government leaflets etc. that advise the use of honey bees as a pollination agent. We should make more contacts and show the farmers that pollination will increase their income as well as ours.

If we ever succeed as honey producers, it will be because we have made all the mistakes. My wife and I wouldn't trade any of it however for we have enjoyed and look forward to enjoying every minute of our beekeeping.

Iowa

WRONG CULPRITS?

by LELAND A. QUINDRY

An article titled, "Juvenile Delinquents" in the July, 1959, "American Bee Journal" describes the destruction of four colonies of bees in an outyard operated within the city limits of Kansas City, Kansas, by R. F. Ferguson.

While I do not know Mr. Ferguson, nor the condition of his apiary, it seems to me that there might be two sides to this story. For instance, if the bees were as vicious as some that I have heard about, or the hives were as much of an eyesore as some beekeepers have, then the socalled hoodlums may have been performing a valuable public service, even though the methods employed cannot be condoned.

Here is a program which I suggest might be adopted in an attempt to prevent future depredations of a similar nature:

1. Withdraw all complaint and withdraw the offer of the $25.00 reward.
2. Requeen all hives with the most gentle stock obtainable.
3. Repair and repaint the exposed portions of all hive stands, bottom boards, hive bodies, supers and outer covers.
4. Discard and destroy all equipment that is not worth restoring to service.
5. Relocate all hives in orderly rows spaced far enough apart that people can walk in and through the apiary without danger of being stung.
6. Remove the padlocked gate and six foot chicken wire netting, and install a neatly painted picket fence of knee height having one or more gateways but no gate.
7. Remove the "No Trespassing" sign and replace with a neatly painted sign or signs bearing the legend: "Apiary, Proceed at your own Risk."
8. Provide an observation hive in a suitable location so that neighbors can satisfy their curiosity about the interior of the hives.
9. Cull queens in hives that develop cross bees, and trap and cull all drones from such colonies. This trapping should continue for a period of at least 24 days after the removal of the queen.
10. Enlist the cooperation of neighbors in an attempt to locate the hives which seem to give them trouble.

Some of the points enumerated above may not be applicable in this particular case. Others may not be practical for one reason or another. In any event, it seems unlikely that a prosecution by law would benefit other beekeepers, even if it succeeded in enlisting one or two handcuffed volunteers into the ranks of the future beekeepers of America.

Pennsylvania

ROADSIDE SELLING

Picture from Lyle Cornish, Branch Office Manager for Dadant & Sons, Hornell, New York. Jack's Honey Farm is near Asbury in New Jersey. Owner is Jack Lancaster. He features domestic and imported honeys, novelties and gifts, hickory smoked meats, country farm products, and honey ice cream. This unit is worth considerable praise. The sign is in yellow and red. The main part of the building is white and the straw skep design is just the color of straw. This is a good picture to go with the story by Miles on the opposite page.

EDITORIAL—

WHERE IS OUR ALLEGIANCE?

On the "Industry" pages of this issue appears a review of information on marketing agreements and orders. Although we have taken this space to bring this information to our readers, we want to give our stand on a marketing agreement and order as compared to the Check-Off Plan.

It is the opinion of the Journal that should the industry organize effectively (something which it strongly believes would be required to put over a marketing agreement and order for honey) and establish a workable program for marketing of benefit to the industry, the Department of Agriculture would look with much more favor on industry requests. These, of course, include the level of price support for honey, import controls should they be desired or needed, export subsidy when needed, use of honey in the school lunch program if desired or needed, and promotional helps in times of surplus honey.

In so many words, if the beekeeping industry definitely demonstrated to the Department of Agriculture that we were doing something to help ourselves, we feel that the attitude of the Department would change markedly toward us.

Now, we have no enabling act; we are not a part of the Agricultural Adjustment Act and, therefore, not entitled to a marketing agreement and order. We only have the Check-Off Plan—a voluntary plan which can do as much for us as a marketing agreement and order if we give it the same support we would be required to give to the latter. Consequently, our first and immediate allegiance is to the Check-Off Plan. May yours be also.

Commercial

MARKETING CONTRIBUTIONS OF THE WAYSIDE HONEY STAND

by CHAS. B. MILES

Along with the fruit growers, the honey producer has always sought ways to market his honey in direct contact with the consumer. In the orchard districts, you will find wayside stands with fruit for sale and many beekeepers have used the same method to dispose of their honey when they are in a position to do so.

Thirty-five years ago or more, the beekeepers had to seek his market more than he does today. I remember when I was a small boy, my father used to take a team of horses and a wagon, load up with 10-pound pails and a few 60-pound cans of honey and travel a considerable distance peddling honey. In those days peddlers were a common thing and people took time off to visit, swap and buy. Now, we are too busy to be bothered with a peddler or to try to dispose of products that way.

As long as I have produced honey, I have always encouraged local sales. During World War II, there was perhaps the most demand for honey from the beekeeper of any time I can remember. Sugar was rationed and the beekeeper with his sweets was a popular fellow for a few years.

Six years ago I migrated to Minnesota from Iowa, and I was fortunate in buying a home located on a state highway. My first thoughts were that now we could have a honey stand. During our first year we set a table at the entrance of the drive with jars of honey on it. People stopped and bought. Then the next year I built our honey stand. I decided that the stand should be as attractive as possible so I designed and built it myself except for the glass which I hired done.

I thought of several names such as "The Bee Hive," "The Honey Jar," and "The Honey Queen." Then I asked my friends and the majority said "Honey Queen" so that was the name I used.

We are not on a cross-country highway yet in summer there is a good tourist travel here because it is a lake country and vacation land. We did not have a register at the stand until the past year and we were then amazed at the variety of places our customers came from.

The stand is self-service and I think most stands operate on that basis. We have found the public on trust are nearly 100 per cent honest. Everybody wonders how we can trust people and yet we have noticed that people will go to lengths to let you know they have paid. Some will even bring their money to the house so you will know they have paid for it.

Our honey stand does not sell the entire crop and we are still obliged to a honey packer to buy much of the honey we produce. However, it does provide a market between the producer and the consumer, and is definitely worthwhile both in marketing and in advertising.

There are several things about this type of marketing which are worthy of note. One is that some people shy away from honey offered in the stores and buy from the producer. This type of consumer thinks he is getting better honey and he will continue to use it. Whereas if he had to buy it in a store, he would not buy it. Therefore, he would be lost as a honey customer.

(Turn the page)

Ben Hughes' honey stand on Highway 71 at St. Joseph, Missouri. He has two stands, one at home. He uses the catchy name of "Honey Boy."

Above stand is mine. We thought of various names—"The Bee Hive," "The Honey Jar" and "Honey Queen." Honey Queen won.

Griggs' Honey Stand at Hancock, Iowa, on Federal Highway 59.

There is no doubt that often undesirable honey has been blended with a good grade in order to dispose of the less desirable honey and it has caused the whole batch to have a flavor that some people don't like. I think this is realized by the packers and there is not so much of it being done as in years gone by.

Then sometimes a consumer is price conscious and is looking for a saving. We offer larger containers at the honey stand. The 10-pound pail and the 60-pound can are there for those who use a lot of honey and you would be surprised at the number of 10-pound pails we sell. Of course these can be sold at a considerable savings per pound and the consumer cannot buy that size at the store.

Our prices otherwise are perhaps a little below store prices and yet they net us far more than we can get wholesale. We clear 20 cents per pound above the cost of the containers at the stand and we cannot get more than 12 cents wholesale. In addition, there is a cent a pound container cost included in the 12 cent store price.

A honey stand that is attractive is as good as a billboard for advertising on the highway. Usually it is entirely dedicated to the sale of honey so there is nothing else to detract the customer. Also the honey is not hidden on a lower shelf or beside some other merchandise.

Throughout the United States, there are quite a number of honey stands. The state of Minnesota has quite a few and I know of several that are doing a good job of selling. I would like to mention a few of them that have been in operation for some time and are pretty well known.

Robert Banker's honey stand at Cannon Falls is known far and wide and is highly successful. Down in Missouri on Highway 71, Ben Hughes at St. Joseph has two stands; one at his home and another between his home and Kansas City on Route 71. He uses the catchy name "Honey Boy Honey" and has signs for miles along the road on both sides. By the time you reach his stand, you are really looking for Honey Boy Honey.

Ed Hartman at Raytown, just out of Kansas City, has a good honey stand business. I got acquainted with Ed when he stopped to see my stand when he was up this way on vacation. While Ed has his stand right in his residential front yard, he has worked up a good trade through advertising and being close to Kansas City, he has a tremendous potential customer list. He also puts his honey out in surrounding fruit stands.

I might mention one more which I think is perhaps as attractive as any I know even including my own and that is the Griggs Honey Stand at Hancock, Iowa on Federal Highway 59. It does not have the parking space that it should and in this day of heavy and fast traffic, it is essential that there be room provided to park off the traffic area. My own stand has a private drive past it with a strip of cement to park on and is comparatively clear of the highway.

In conclusion, I would like to say to those who live in the country where there is no chance to promote a honey stand, your interest may perhaps not be stirred but there are many beekeepers living inside municipalities that could create consumer interest with a small stand in the front yard. It does not have to be elaborate.

I would like to use Mr. Griggs again as an example of a beekeeper who produced honey for years while living where he does, yet the idea of a stand only got hold of him only a short time ago after seeing a picture of my stand and he tells me that he is very pleased with his and surely he should be for, as I said before, his is a really nice stand.

So there may be other beekeepers in like situation that have never had the idea appeal to them. I hope I have caused someone to start thinking along this line. You'll find that it gives you an added interest in the business and as our honey is one of the finest foods produced, the beekeeper need never be ashamed of offering it to the public.
Minnesota

Thiodan Harmful to Bees?

Research at the station in Wallaceville, New Zealand, has proved that if broadbeans are sprayed, while in bloom, it may have no harmful effect on bees if the spraying is done while the bees are in the hive, or an hour before the first morning flights.

Large Cages for Testing in New Zealand

The smaller cages previously used in New Zealand for testing and experiments (5 x 22½ ft. - 2½ ft. tall) are being superseded by a larger cage (30 x 10 x 6¼ ft. high). This has given better results. The demand for more information on pollination is growing, as is the realization of the value of the honey bee in agricultural pollination.

PACKING BEES IN ASPHALT PAPER

P. W. BURKE
A. ADIE
Department of Apiculture, Ontario Agricultural College

Honey bees should have some form of protection during the winter to help withstand sudden changes of temperature and cold winds. Insulation provided for this purpose helps conserve the energy of the bees and the food supply. Winter packing may be done during the latter half of October when it is warm enough to work comfortably but not warm enough for the bees to fly. A simple and effective means of winter protection is by the method illustrated.

For packing, Number 2 asphalt sheathing paper is recommended. Planer shavings, leaves or straw may be used for insulation. Other materials consist of an inner cover which supplies a top entrance, a strip of wood to form a bridge at the lower entrance and entrance blocks. Binder twine or other strong cord is used to hold the cover.

A roll of paper is usually about 1600 inches long, and when cut into 95-inch lengths will pack 16 colonies. This gives 2 inches of insulation and allows for a 5 ¾-inch lap. The lap joint may be sealed with asphalt pitch for asphalt sheathing, where many colonies are operated or by using three or four nails to fasten the ends together where only a few colonies are to be packed. The entrance block for the top entrance has a ¾-inch hole; the lower opening is 3" x ⅜". The paper is just pierced through these entrance allowances as each colony will open the paper to suit its own requirements. About 4 to 6 inches of insulation must be provided on top of the colonies.

Colonies packed in asphalt paper must be fenced from livestock, as they may tear the paper.

The packing form shown gives a neatly finished job and is made to give 2 inches of packing. It is hinged on three corners so it may be folded flat, and is hooked at the fourth corner.

The top entrance is advantageous where snow is usually deep, or where icing at the entrance is encountered, and gives a readily accessible entrance as the cluster of bees is usually near the top of the hive in late winter and early spring. A ¾-inch hole could be bored into the top super for this purpose in place of a notched inner cover.

At the present time there is a tendency to wrap colonies with the black paper without giving any insulation on the sides. Top packing as described above is used. Less paper is required and less time to do the work. However, it is questionable if the wintering results are quite as good as where side packing is used.

Top entrance in rim of inner cover; bridge over bottom entrance.

Paper sleeve and packing form in place. (Pictures and text from Circular 132, Ontario Ag. College)

Nailing on top entrance block. Bottom entrance block in place.

Folding on top paper. String will hold cover on top and paper at sides.

The Beginner . Editor - W. W. Clarke, Jr.

**Question from—*
Peter Witherell
Massachusetts

► During the months of August and September, my apiary is plagued by hundreds of yellow jackets which try to slip in the entrance of the hive to steal honey. They also seem to be interested in the dead bees outside the hives on the ground. I once located a nest of them and tried to destroy them by pouring a pint of ammonia in their hole in the ground and then covering it with dirt. The next day, they were as active as ever as if nothing had happened. What do you recommend to combat these pests? Do you think cyanogas would be of any value in destroying nests?
Answer—

I have never had any experience with yellow jackets which do harm to the beehive. Many insects show up around the beeyard and appear to be attacking the bees, but it is probably the other way around; the bees can defend themselves.

I am certain that cyanogas will destroy the nest. Lindane or chlordane dust will also destroy the colony.

**Question from—*
J. C. Campbell
Mississippi

► A short time ago a friend of mine, badly in need of some bees to pollinate several hundred acres of white Dutch clover, purchased twenty hives without any knowledge of bees. He asked me to look through them for him. About half of the hives were in one brood chamber and the other half were in double brood chambers. Those in the single brood chamber were not given any foundation to work on, and have one and two frames of comb built by them as bees will without foundation. Those in the double brood chambers have the frames so badly glued together and to the wall of the hive, it will be impossible to remove a frame for inspection unless the box is broken apart.

The season grows short in which they can help themselves under proper management. He has already spent $400. and about all he has is a few bees and a pile of junk. Please advise what procedure should be taken to put these bees in good shape.
Answer—

I do not think your friend is in too much trouble. Although this outfit may look like a mess, I am sure it can be corrected with a minimum amount of trouble and expense.

Your first job is to get the bees into good hive bodies with good comb. This is best accomplished by placing another hive body with frames containing full sheets of foundation on top of the old hive body. The bees will draw this into comb during the honeyflow. You may, in your checking, find the queen in these upper bodies; in this case, move the new hive body down to the bottom board and place the old one on top over a queen excluder. The combs will be filled with honey after the brood has emerged. Remove the old hive body when it is filled, take out the combs, and remove the honey. Any good combs may be saved; the rest rendered into beeswax. A super with good frames and comb or foundation should be added when the old hive body is removed.

If the bees are weak, it might be well to unite them to make them worth owning.

**Question from—*
Raymond Youngs
Nebraska

► I would like to submit some questions about poor queens. How many combs of brood is it necessary to examine to tell if a queen is poor? I use three ten frame bodies for brood. I understand a poor queen is indicated by larvae of varying ages being in the same area. If this is so is there anything else that will cause such irregularity, such as pollen in the way temporarily; or a colony short of honey so the bees reduce breeding (of course disease could)?
Answer—

You can usually tell the condition of the queen by looking at three or four frames. You should be able to tell in that number whether or not the queen is laying a solid pattern and that the brood is about the same age.

There are a few things which might cause some irregularity, such as the presence of stored pollen and honey. Spray poison may make some difference. The fact the bees are short of honey may cause them to remove brood and slow down on brood rearing. A small cluster of bees will also reduce the size of the brood nest, but the pattern in this case is usually uniform.

**Question from—*
James D. Davis, Jr.
Texas

► I just took the course in beekeeping at Penn. State. Very good. What helps us most down here is diseases, queen rearing and marketing.

This course told a little of the Doolittle system. However, in dipping his cell cups, Doolittle used corn starch in cold water. What about it? Can you tell me whether this is a satisfactory procedure or not? Maybe we are missing something.
Answer—

I believe most queen breeders, who make their own queen cups, use only cold water on the stick used to mold the cups. However, corn starch in cold water is certainly satisfactory and it is used quite often. It makes little difference which you use as long as the wax does not stick.

**Suggestion from—*
James M. Gilland
North Carolina

You have an excellent article each month "What the beginner wants to know." I wonder how many readers are really beginners? This very article and the advice one gets there are just wonderful beyond words.

Now I wonder, if there could be another article added each month, "Chores for the beginner for the month of ———" I know, that your 5 little booklets and "First Lessons in Beekeeping" are explaining those things perfectly, BUT—how wonderful IF one could just open the Bee Journal and, re-check if one is getting behind in the work, or if one has perhaps in all the rush with gardening etc. forgotten to do a very important job. What do other beekeepers think of such a monthly re-

minder of tasks? I know it would be a tremendous help to us, who are inexperienced, and yet, eager to make good with hobby. Similar columns can be found as to "garden," "in the orchard" etc. in different farm magazines. Why not one for the beekeeper?

Second, there are several questions I would like to ask. Perhaps they sound rather silly, but nevertheless, they puzzle me.

Reply—

Thank you for your letter and suggestion. I am not sure that it is practical to set up a calendar for the whole United States. I noticed on my trip South in February the maple was in bloom in Florida, while it was snowing hard in Vermont a week later; but we shall see what can be done.

Backfire in Insect Control

H. L. Maxwell, Berryville, Va., calls attention to the article in the June issue of Reader's Digest, page 64, by Robert Strother, "Backfire in the War Aganist Insects." Billions of pounds of poisons have been broadcasted over 100 million acres of cropland and forest. And more billions this year against spruce budworm, grasshoppers, white fringed beetles, sand flies, gnats, Japanese beetles, corn borers and gypsy moths. The new insecticides kill fish, birds, and other animals, as well as insects, both good and bad. Dr. George J. Wallace, zoologist of Mich. State University says: "This widespread program poses the greatest threat that animal life in North America has ever faced—worse than deforestation, worse than illegal shooting, worse than drainage, drought, oil pollution; possibly worse than all these decimating factors combined." Many detailed examples, pro and con, are given in this five page article to end with Dr. Wallace's prophecy: "Carrying out the pest eradication programs may make us witnesses, within a single decade, to a greater extermination of animal life than in all the previous years of man's history on earth."

Are You a Nuisance?

Ellis A. Taylor, commercial operator at Lemoore, California, says sometimes beekeepers are careless about how they "Leave old parts of covers, or hives, or feed cans and trash they don't want in outyards for others to clean up. Some bee men move through towns in day time with bees all over their loads at all stops. Some even stop to eat lunch and people walking by slap and dodge angry bees. Some fail to take care to set bees down where they will not be a bother to people in houses or workers in the fields."

"There are many ways we can make ourselves unwanted and they make it hard to find places to locate for winter; all because we do not take time to remember that all people are not afraid of bees."

"We make it a practice to see that every worker on the ranches, where we pollenize, get fresh honey often. It may cost a bit but we have many times been well favored, all because of the little honey we give to the workers in the fields."

That Horned Worm on Sourwood

In July, page 280, Carl Teasley has an item about what he called the one-horned green sourwood eater. He now writes that Robert Sparks Walker of Chattanooga, a naturalist, has identified it as a sphnix caterpillar. It produces a hawk moth capable of flying a fast 100 miles an hour. Its tongue dipped into the moonflower would be the same depth as the tube of the flower. Carl says an epidemic of this moth is not needed on sourwood so he hopes nature will balance things.

New Institute Recipe Books

Just out is a 62 page booklet of "Honey Recipes—Large Quantity" designed to serve the party-social etc. It covers everything from beverages (25 to 100 cups); breads (10 to 50 loaves); cakes and frostings (25 to 100 servings); cookies (2 to 10 dozen); desserts; meats and vegetables. We assume the book sells for about 25 cents. Available at the American Honey Institute at Madison, Wis. as is a small flyer "Honey in Some Way Every Day."

Bee Swarm Collector

A portable bee collector and trap for recovery of swarms. The apparatus comprises a box with an exhaust fan at one end, a conical nozzle at the other end for the entrance of bees, a wire screen to keep the bees out of the fan, a soft fabric baffle for prevention of injury to bees, and a flutter gate over the inner end of the nozzle which automatically closes to prevent escape of the bees when the fan is not in operation. The trap is of such dimensions that it covers an ordinary 10 frame hive when laid on its side. A sliding door is placed in one side to allow passage of the bees from the trap to the hive.

(U. S. Patent by Aurele A. Studier—Summary by Dr. F. B. Wells)

What Do You Want To Know?

Bill Clarke, Jr., as Editor of this Beginner department, is a commercial type of Sideliner as well as serving as the Extension Beekeeper at Pennsylvania State College. He has to help solve all kinds of problems for beekeepers of all classes but particularly the beeginner and the small sideliner. When you need help ask Bill. Write to him at Penn. State, University Park, Pa., or write to the American Bee Journal Hamilton, Illinois.

Bees

I think that I shall never see.
An insect as interesting as a bee!

A bee with lovely stripes and bands,
And feet that serve as arms and hands;

A bee who hustles and works all day,
Taking no time out for rest or play.

A bee who works in lovely flowers,
Gathering nectar through long hours

A bee who knows where she lives,
And to her home true service gives

A bee whose wings do surely wear,
From flying always through the air.

A bee who works with fellow bees,
Cooperating always, and with ease.

A bee that'll sometimes act mad and gruff,
And with stinger treat an enemy rough.

So, When I observe my busy bees,
I think of sweetness from flowers and trees—

Fools like me may make "folding" money,
But only bees can make good honey.

I paraphrased this *from Joyce Kilmer's "Trees"* for an entomologist friend and he liked it so well I thought perhaps other beekeepers would.

Lew H. White
Shawnee, Oklahoma

Let's Have A Picnic Or A Patio Party

First A Cocktail, Please

Pineapple Delight

Pour 1 cup unsweetened pineapple juice into an electric mixer. Add 2 tablespoons wheat germ; 1 tablespoon powdered skim milk and 1 teaspoon of honey. Mix until smooth and creamy and serve at once. (Mrs. Arnold Perlick, Suring, Wis.)—Adds a Hawaiian touch. Make just before serving. Cost about 9 cents.

Orange Milk Shake

Shake or mix 1 glass orange juice with 2 tablespoons powdered skim milk and 1 tablespoon of honey. Mix until smooth and frothy and drink at once for quick and added energy. (Mrs. Perlick)—U m m m, smooth and delicious. Cost about 12 cents.

Curvaceous Cocktail

Into one cup of orange juice or milk beat 1 egg yolk, 1 tablespoon wheat germ, and 1 teaspoon of honey. (Mrs. Perlick) Makes a breakfast in a glass. Cost 16 cents.

Now, How About Sandwiches?

Double Deckers

Eight white bread slices; butter and anchovy paste; small package of frozen shrimp; 1 tablespoon mayonnaise; 2 tomatoes; 1 hard boiled egg; water cress sprigs.—Trim the bread crusts. Then spread slices with butter; spread one slice with anchovy, cover with shrimp mixed with mayonnaise; top with second slice of bread; arrange sliced tomatoes on second slice. Garnish the sandwiches, with sliced hard boiled egg and watercress. (G. Goward, Mansfield, England)—Seafood sandwiches from across the sea. Cost here about 87 cents.

Honey Cheese Nut Spread

Half cup cottage cheese; ¼ cup peanut butter; ⅛ cup honey. Put in bowl and mix well. Use as a spread on bread, crackers or cookies. Made by my mother when we lived on a dairy farm in Missouri. (Mrs. Roy Gensweider, Fort Worth, Texas) Economical and moist. Cost 17 cents.

Then the Main Dish

Honey Pork and Beans

A pound can of pork and beans in tomato sauce; 2 Smokie sausages; ½ small onion; 1 tablespoon bacon fat; 2 tablespoons of honey or more to taste. Fry the onion, diced, in bacon fat; cut up Smokies into bite sized chunks and add them to the onions along with the beans. Add the honey and heat through. Serves two. It is quick and devilish. Just plain good. Cost 35 cents.
Roger Kay, Davenport, Iowa

And, If You Are Thirsty

Honey Health Drink

One package of Kool Aid; 3 oz. apple cider vinegar; 3 oz. or more of honey; half gal. of water. Put in refrigerator to cool or serve with ice cubes.—*A variation*—1 package Kool Aid; 1 package Jello or other gelatin powder; 6 oz. apple cider vinegar; 4 or more oz. of honey; 1 gal. water—Can be made with matching flavors of Kool Aid and Jello; or mixed flavors such as orange Kool Aid and strawberry Jello and so forth. First made by my husband after reading an article by Dr. Jarvis, June, 1957.—Both recipes definitely tangy. Dissolve Jello in hot water for smoothness. Cost 30 cents.
Mrs. Gensweider

Then Dessert, Please

Strongboy Cookies

High Protein. ½ cup Mazola; 2 eggs; 1 tablespoon vanilla extract; ½ cup brown sugar. Mix together. Then sift in the following and stir enough to mix well: 1 cup soy bean flour; ½ cup wheat germ; ½ cup powdered milk; ½ teaspoon salt; 2 teaspoons baking powder; ½ cup shredded coconut. Drop on greased baking sheet. Bake at 350 degrees for about 10 minutes. They wil' be limp on removal from oven but will stiffen on standing.

Thinking about the food value of honey and pollen substitute, I tried a cooky recipe from Adelle Davis' "Let's Cook It Right" and Dr. Haydak's pollen substitute formula; shook 'em up together and this recipe came out. I call them "Strongboy" cookies

because I am sure any boy who eats them will become a strong boy. (S. S. Miner, Niles, Michigan) Excellent. Cost 58 cents.

Apple Crunch Casserole

2½ cups drained canned sliced apples; ½ teaspoon salt; 1 tablespoon flour; 2 tablespoons honey; ½ cup Bisquick; ¼ cup liquefied nonfat dry milk or skim milk; 2 tablespoons sugar; ½ teaspoon cinnamon. Heat oven to 425 degrees. In a quart casserole mix apples, salt, flour and honey. Combine Bisquick with milk and 1 tablespoon sugar; spoon over applies. Mix remaining sugar with cinnamon and sprinkle over Bisquick. Bake 40 min. or until crisp and nicely browned. Best served warm. With ice cream my husband says it's tops. 200 calories per serving. (Mrs. Robert B. Howell, Bowling Green, Mo.)—Excellent. Cost 30 cents.

1960
Our Anniversary Year

Yes, sir, the American Bee Journal begins it's One Hundredth Year in January. I would like to have suggestions from readers about what we should do in this department; something new and unusual.—Pat

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That Swing to the Kitchen last month struck a lucky cord. Demand for copies took almost all the spare copies on hand. The Swing was not finished though and on the page opposite, we continue with Cakes. Still have Muffins, Cornbread and Gingerbread.

Mocha Honeycake

2 cups sifted flour, 1½ tablespoons instant coffee, 2 teaspoons baking powder, ¾ teaspoon salt, ½ cup shortening, ½ cup honey, ½ cup sugar, 2 eggs, separated, and ½ cup milk.

Measure and sift dry ingredients together. Cream shortening until soft; blend in honey, add sugar gradually, creaming well after each addition; blend in egg yolks slightly beaten. Add sifted dry ingredients alternately with milk, blend until smooth. Beat egg whites until stiff, but not dry; fold thoroughly into batter. Pour into 9 X 5 X 3 pan. Grease bottom of pan; line with waxed paper; grease paper. Bake in a slow oven (325°) 1 hour and 15 minutes. Cool cake in pan about 5 minutes; remove from pan onto cake rack; cool completely before slicing.

Mrs. F. J. Lembke, Fayetteville, Arkansas

Rich Fruit Cake

9 oz. butter, 5 oz. soft brown sugar, 4 oz. honey, 4 eggs, 9 oz. plain flour, 2 level teaspoons cocoa, ½ level teaspoon salt, 1 level teaspoon baking powder, 4 oz. stoned raisins, 4 oz. mixed candied peel, 1 lb. currants, 6 oz. Sultanas, 4 oz. glace cherries, 2 oz. almonds, 2 oz. ground almonds, 1 teaspoon coffee essence, 1 tablespoon of mead, finely grated rind of 1 lemon.

Chop almonds and cherries and mix well. Sift together flour, salt, and baking powder. Cream butter and sugar and add eggs, lightly beaten, a little at a time. Beat in well. Add flour and fruit mixed lightly together. Stir gently with metal spoon and mix thoroughly. Add honey, mead and coffee essence. Pour the mixture into a well greased nine inch tin lined with greased grease-proof paper. Bake in a very slow oven (standard thermostat gas setting mark 1; Electric oven at 350°) for 4 hours. Test your cake with a warm steel knitting needle.

E. Goward, Notts, England

Honey Frosting

2 egg whites, dash of salt, 1 cup honey.

Beat egg whites until foamy, then add salt and continue beating until soft points shape up. Start adding honey gradually and keep on beating until frosting is the right spreading consistency. Makes enough for a 2 layer 9 inch cake.

Mrs. Martin Roth, Manor, Texas

Honey White Cake

¾ cup butter, ¾ cup sugar, ¾ cup honey, 5 egg whites, 3 cups flour, 4 teaspoons baking powder, ½ teaspoon salt, ¾ cup milk.

Cream butter until soft, add the finely granulated sugar, stirring gradually until the mixture is light and fluffy. Combine the honey with the milk. Add this mixture alternately with the sifted ingredients, stir in the milk. Last of all fold in the well beaten egg whites. Pour into a lightly greased pan and bake in a very moderate oven (325°F) until done.

Honey Orange Filling

1 tablespoon flour, 2 tablespoons cornstarch, 2 egg yolks, well beaten, ⅓ cup honey, ¼ teaspoon salt.

Mix smooth in a double boiler. Add slowly the following, stirring constantly: ¼ cup orange juice, 1 tablespoon lemon juice, 2 tablespoons water.

Add 1 teaspoon butter and grated rind of ½ orange. Cook over boiling water stirring occasionally until thick (about 20 minutes). Cool, spread between layers of cake.

Mrs. Arnold Perlick, Suring, Wisconsin

Two-Layer Chocolate Cake

½ cup honey, ½ cup sugar, 6 tablespoons heaping, cocoa, 3 tablespoons shortening (I used butter), 1½ cups flour, 1 rounding teaspoon soda, 1 teaspoon salt, 1 teaspoon vanilla, 1 teaspoon fresh lemon, 1 cup sour milk.

Mix sugar, honey and cocoa. Add melted shortening, mix well. Sift flour, soda and salt and add alternately with milk. Bake in 8 inch pans at 350° for 25 minutes.

Mrs. Ardith Wyckoff, Chester, New Jersey

Honey Sour Cream Spice Cake

2 eggs, 1 cup sugar, ¼ cup honey, 1 teaspoon vanilla, 1⅓ cup sifted cake flour, 2 teaspoons baking powder, ¼ teaspoon soda, ¾ teaspoon salt, 1 teaspoon cinnamon, ½ teaspoon nutmeg, ½ teaspoon allspice, 1 cup thick sour cream.

For serving. Whipped cream, cranberry sauce or currant jelly.

Beat eggs until light and lemon colored. Sift sugar and beat in gradually. Add honey and vanilla. Sift, then measure flour and add baking powder, soda, salt, cinnamon, nutmeg and allspice, sift again. Add to egg mixture alternately with the sour cream. Beat until smooth. Bake in a greased and floured 12 X 9 X 2 pan in a (350°) moderate oven for about 45 minutes. Serve topped with whipped cream and a jewel of cranberry sauce or currant jelly.

Mrs. Clarence Judson, Yuba, Wis.

Honey Cheese Cake

Cream 3 tablespoons butter, blend in 2 cups sieved cottage cheese, 2 tablespoons sifted all-purpose flour, 1 teaspoon salt. Beat in ⅓ cup honey, 3 tablespoons lemon juice, 1 teaspoon lemon rind. Add one at a time, beating well after each addition 4 egg yolks; beat until stiff 4 egg whites, add slowly ⅓ cup sugar, beat until soft peaks form. Fold into cheese mixture. Blend in ⅔ cup milk.

Crumb base: Combine 2 cup crushed graham cracker crumbs, ⅓ cup butter melted, 1 teaspoon cinnamon, ⅓ cup honey. Press all but ⅓ cup of crumb mixture firmly along the bottom and sides of 11½ X 7½ X 1½ inch pan. Pour in filling, sprinkle with remaining crumb mixture. Bake in moderate oven (350°) 1 hour. Serves 9.

Mrs. Arnold Perlick, Suring, Wisconsin

Honey Cake

½ cup shortening, 3 eggs, separated, 1 cup honey, ½ teaspoon cinnamon, ½ teaspoon ginger, ¼ teaspoon nutmeg, ¼ teaspoon cloves, ½ teaspoon salt, 4 cups sifted cake flour, 1 teaspoon soda, 1 cup water, 1 cup chopped nuts.

Cream the shortening until very fluffy and add the beaten egg yolks. Mix well. Blend in honey. Sift dry ingredients together and add alternately with the water to the first mixture. Beat well. Fold in the stiffly beaten egg whites. Add nut meats. Pour into a well-greased loaf pan and bake in a moderate oven (350° F.) 50 minutes. Makes 1 (10 X 12") cake.

Mrs. James Criswell, Compton, Arkansas

Industry.....

MARKETING AGREEMENTS AND ORDERS

In an editorial, which appeared in the July issue of The American Bee Journal, we supported legislation (S1989 and HR8269) to amend the Agricultural Adjustment Act to include products of the honey bee. We clearly stated that this merely would enable the beekeeping industry to organize, to establish regulations, and to collect funds to put its own house in order through a marketing agreement and order if approved by the Secretary of Agriculture.

Since then, several correspondents have asked for additional information as to what marketing agreements and orders were, so we are attempting to summarize information received from Marvin Webster, Specialty Corps Branch, Fruit and Vegetable Division, U. S. Department of Agriculture.

The purpose of a marketing agreement and marketing order are: (a) to establish and maintain such orderly marketing conditions for agricultural commodities as will establish prices for the producers at the parity level; (b) to establish and maintain such minimum standards of quality, grading, and inspection as will be in the public interest; and (c) to provide an orderly flow of the supply of a commodity to market throughout its normal marketing season to avoid unreasonable fluctuations in supplies and prices.

A marketing order can be issued when at least two-thirds of the producers, by number voting or by volume voting, approve the issuance of the marketing order, and not less than fifty per cent of the handlers (packers), by volume, sign the agreement. If the Secretary of Agriculture finds that it is the only practical way of advancing the interests of producers, he may issue a marketing order when the above two-thirds of the producers vote for the agreement, without packer approval.

The procedure for obtaining a marketing agreement and order is quite complicated, even though an industry marketing agreement can be anything the industry wants provided it is approved by the Secretary of Agriculture. First a preliminary proposal is drafted by industry people for review and consideration by them. Then the industry proposal, together with a request for a public hearing, is submitted to the Deputy Administrator, Agricultural Marketing Service. After at least fifteen days' prior notice, the hearing is held at a place convenient to the industry and persons within the industry are given an opportunity to appear and even to file briefs later on. Then the Deputy Administrator prepares a written recommended program for the industry which is published in the Federal Register and another period for filing exceptions takes place. Finally, the marketing order, as approved by the Secretary, is submitted to the producers for approval by referendum, and copies of the marketing agreement are sent to packers for their signatures.

All marketing orders are administered by a committee composed of producers and packers, the members having been nominated by the industry and approved by the Secretary. Only the expense of establishing the hearings and proceeding to the establishment of a marketing agreement and order is the burden of the government. The expense incurred by the committee in administering the marketing order is financed by each packer paying his pro-rata share in the form of assessments. The Federal Government has the responsibility of enforcing marketing orders but the administrative committee has the duty of obtaining compliance and of reporting violations of the terms and provisions of the order to the Secretary. Marketing orders are enforceable either by civil or criminal prosecution.

Although a marketing agreement and order may be anything desired by the industry and approved by the Secretary, they usually include regulation of quality that may be shipped to market, regulation of quantity by allotting the amount packers may market to designated outlets, and regulation of containers as to size, weight, and the like. Marketing agreements also can establish research projects designed to encourage improved marketing, distribution, and consumption of commodities; They can prohibit unfair trade practices; and they can contain other additional provisions to make the program effective.

The Department of Agriculture estimates that several months should be allowed by an industry prior to the hearings, to allow packers and producers to discuss and conclude on program objectives and provisions. Then the departmental procedure of hearings, filing of briefs, referendum and the rest requires about six months' time.

A marketing agreement and order is not a permanent or fixed thing. It can be amended as necessary; it can be terminated either by the secretary determining that the program no longer effectuates the declared policy of the Agricultural Adjustment Act, or by a request from the majority of producers who produce more than fifty per cent of the total commodity.

By R. A. Grout

Edited by

Robert Banker

Cannon Falls, Minn.

Concerns Participating in the Check-off Plan from September 1, 1955 Through August 4, 1959 who have Purchased Stamps.

NAME:
R. B. Willson, Inc.
250 Park Ave.
New York 17, N. Y.

Rolan C. Stone
Superior Honey Company
P. O. Box 1007
South Gate, Calif.

Mortons Quality Foods
6333 Denton Drive
Dallas 1, Texas

T. W. Burleson & Son
Waxahachie, Texas

Old Taylor Honey Company
L. C. Taylor
Harlan, Iowa

Rocke Apiaries
Eureka, Illinois

Kane Import Corporation
10 East 40th Street
New York 16, N. Y.

Jack Gomperts & Company
Mr. Ken Golding
110 Market Street
San Francisco, Calif.

B-Z-B Honey Company
Mr. J. D. Phelan, Mgr.
P. O. Box 230
Alhambra, California

Lose Brothers
204-206 East Jefferson Street
Louisville, Kentucky

R. W. Barnes & Sons
Ralph W. Barnes
P. O. Box 114
Oakland, Nebraska

H. F. Botsford & Company
H. F. Botsford
Bell Avenue
Carnegie, Pennsylvania

Clearbrook Honey Farms
George McReynold
Clearbrook, Minnesota

Superior Honey Company
349 Third Street
Ogden, Utah

Superior Honey Company
Ralph J. Stone, Manager
P. O. Box 3546
Phoenix, Arizona

Champlain Valley Apiaries
Mr. Charles Mraz
Middlebury, Vermont

R. D. Bradshaw
P. O. Box 337
Wendell, Idaho

Clover Bloom Honey Company, Inc.
Mr. Glenn Gibson, Pres.
P. O. Box 276
Minco, Oklahoma

Howard Honey House
Vernon G. Howard, Prop.
4170 S. Howell Ave.
Milwaukee, Wisconsin

Weaver Apiaries
Roy S. Weaver, Jr.
Navasota, Texas

Superior Honey Company
Ralph J. Stone
4242 Elizabeth St.
Denver 16, Colo.

Hazeltine-Staats Apiaries
204 Sixth Avenue S. W.
Cedar Rapids, Iowa

Finger Lakes Honey Producers Co-op, Inc.
Frederick J. Griffin, Mgr.
206 West South Street
Groton, N. Y.

Superior Honey Company
Idaho Falls Branch
Idaho Falls, Idaho

Sioux Honey Association
Mr. Robert J. Steele, Ass't. Gen. Mgr.
509-11 Plymouth Street, Sioux City
Iowa

Cox Honey Farms
Mr. O. L. Cox
Shelley, Idaho

Dadant & Sons, Inc.
Hamilton, Illinois

Mr. O. E. Timm
Bunnington, Nebr.

Hamilton & Company
2613 South Yates Ave.
Wendell Shore, Mgr.
Los Angeles, Calif.

W. C. Chiles
1335 Bryn Mawr, N.E.
Box 911
Albuquerque, N. M.

Haefeli's Honey Farms
Monte Vista, Colorado

Pleasant Hill Honey Farms
Route No. 3
Stoughton, Wisconsin

E. J. Bordelon Apiaries
Moreauville, La.

Mr. John Krueger
Deloit, Iowa

Melford Olson Honey Company
Mel Olson
5201 Douglas Drive
Minneapolis 22, Minnesota

Clearbrook Honey Co.
Robert Banker, Manager
Route 1, Box 62
Cannon Falls, Minn.

Hughes Honey House
Everett S. Hughes, Jr.
440 South Geneva Ave.
Bellwood, Illinois

E. C. Westfall
Howe's Cave, New York

Robert R. Rice
5880 N. W. 22nd. Ave.
Miami 47, Florida

Cloverdale Honey Company
113 Central Avenue
Fredonia, New York

Miller Honey Company
67 East 33rd. South
Salt Lake City 15, Utah

Helen's Apiaries
F. Q. Bunch, Manager
Welch, Minnesota

Walter G. Sagunsky
Sheridan, Montana

Honey Butter Products Corp.
P. O. Box 262
Ithaca, New York
Attn. C. W. Sadd

Norman Harper
Belleville, Wisconsin

Marcus Osborne
Beloit, Wisconsin

Ross Brothers Apiaries
111-113 North Commerce Street
Corsicana, Texas
(Nelson N. Ross)

A. R. Davis
Bon-Day Farm
Frankfort, Ohio

Coggshall's Honey House
Millard V. Coggshall, Mgr.
Minneola, Florida

Neil J. Miller
609 North Broadway
Blackfoot, Idaho

John G. Jessup Honey Farms
John G. Jessup, Mgr.
1421 Willis Ave.
Perry, Iowa

Lear & Johnston
Route 1, Box 25
Belen, New Mexico

Joseph S. Lee
Hayfield, Minnesota

Tropical Blossom Honey Company
David K. McGinnis, Owner-Mgr.
P. O. Box 80
Edgewater, Florida

Baxter Honey Farm
W. E. Baxter
Blair, Nebraska

B-Good Apiary
Mr. & Mrs. Ernest Huff
P. O. Box 284
Newberg, Oregon

The Stoller Honey Farms
Mr. Irvin A. Stoller, Mgr.
Latty, Ohio

L. H. Little,
Secretary

Check-Off Stamps Through Associations

After reading the enthusiastic accounts that encourage support of the Check-Off plan for honey advertising and publicity, I thought of this approach for securing membership to it. I think the stamps should be used to represent the charges for each unit of honey and should be distributed and supported locally by all beekeepers associations. I think the plan would be more successful and more whole-heartedly supported if it were handled locally. (Some groups have already bought stamps this way. Contact the Secretary, L. H. Little, Shelbyville, Tennessee. Ed.)

POSSIBILITIES FOR DEVELOPMENT OF INSECTICIDE RESISTANT HONEYBEES*

by WALTER THOMSEN, Economic Entomologist, Bureau of Chemistry, Department of Agriculture, State of California

Introduction

Accumulated knowledge of the insecticide resistance problem shows that many insects have the capacity to develop resistance, that such development can take place in relatively few generations, that a high degree of resistance can develop, and that individual species can develop resistance to numerous insecticides. In view of these facts some consideration should be given to the possibility of developing insecticide resistance in honeybees.

The Poisoning Problem

Since the development of the chlorinated hydrocarbon insecticides and their substitution for the arsenates the honeybee poisoning problem has been markedly reduced; however, it still remains a problem and is a serious matter for the individual beekeepers who sustain losses of many colonies Assessment of damage is frequently difficult, particularly when bees die in the field, and such poisoning is often insidious in its origin and difficult to detect.

Possible Benefits

Benefits which would be derived from breeding insecticide resistance into honeybees go beyond the obvious benefit of preventing occasional loss due to accidental exposure of bees. New territory in which bees cannot now be kept due to poisoning hazards would become available for use. Necessity for frequent moving to prevent poisoning would be reduced and management would be simplified. Seed fields utilizing pollinating bees could be treated without moving colonies, thus increasing yield by controlling pests and at the same time continuously maintaining pollinators. Costs and management problems in such seed fields would be reduced. A possible further benefit would be increased vigor of the bees due to elimination of less hardy stock during the breeding program. Hoskins and Gordon (1956) attribute one possible cause of resistance to a general increase in vigor and term it "vigor tolerance." In addition, breeding of insecticide-resistant honeybees would be of considerable academic interest.

Types of Insecticide Resistance In Insects

Insecticide resistance may be divided into two types: 1. Environmentally conditioned and 2. Genetic. Environmentally conditioned resistance is that which results from factors other than the insects inherent make-up, for example, nutrition and conditions of growth. Moderate insecticide resistance (also called tolerance) can be induced through nutrition and has been demonstrated by McGovran and Gersdorff (1945) in houseflies and by Phillips and Swingle (1940) in mosquitoes. It has been demonstrated by Finney and Hagen that feeding a protein hydrolysate of yeast to oriental fruit flies (Dacus dorsalis) increases their resistance to DDT compared to flies fed a normal diet of banana pulp (Hinman, 1950). We can speculate that it may also be possible to develop a degree of resistance in honeybees by nutritional means. For example, feeding of calcium which is important for proper functioning of nerve impulses could possibly prevent or hinder the disruption of such impulses caused by some insecticides. Reduction of calcium level is known to cause effects on nerve action similar to the effects caused by DDT (Roeder, 1948, Welsh, 1947). Calcium can be easily supplied to bees in the form of skim milk fed in pollen substitutes. Other items such as vitamins, salts, minerals, drugs, and stimulants may also affect environmentally conditioned resistance.

Genetic resistance is that which is inherent in the organism and is transmitted from parent to offspring. There are two types of genetic resistance: 1: Behavioral and 2. Physiological. Behavioral resistance is that due to the organism's behavior, for example, flies which habitually sit quitely on the tips of their claws would pick up less insecticide deposit than flies which actively walk around on the pads of their tarsi. Similarly, if a strain of honeybees develops an aversion to an insecticide its resistance would be behavioral.

Physiological resistance is that due to such factors as chemical detoxification of the insecticide after pick up, rapid elimination of the insecticide, failure of pick up due to alteration of cuticle structure, or ability to counteract the toxic effects through the action of enzymes, hormones, or some other such mechanism. It is physiological resistance which is so widespread at present and is frequently causing failure of control measures.

Many Species Have Developed Resistance

Resistance to insecticides by insects was first noted in 1908 when San Jose Scale *(Aspidiotus perniciosus* was found resistant to lime sulfur sprays which had previously given control (Melander, 1914). By 1912 resistance to cyanide in the black scale *(Saissetia oleae)* was noted (Woglum, 1925). California red scale

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(Aonidiella aurantii) developed resistance to cyanide between 1912 and 1913 (Quayle, 1938). Between this period and the end of World War II at least ten more species developed resistance: citricola scale *(Coccus pseudomagnoliarum)* to cyanide (Quayle, 1938), citrus thrips *(Scirtothrips citri)* to tartar emetic (Boyce et al., 1942), gladiolus thrips *(Taeniothrips simplex)* to tartar emetic (Quayle, 1943), codling moth *(Carpocapsa pomonella)* to acid lead arsenate (Hough, 1928), walnut husk fly *(Rhagoletis completa)* to cryolite (Quayle, 1943), peach twig borer *(Anarsia lineatella)* to basic lead arsenate (Summers, 1949), flour beetle *(Tribolium confusum)* to cyanide (Gough, 1939), screwworm *(Callitroga americana)* to phenothiazine (Knipling, 1942), blue tick *(Boophilus decoloratus)* to sodium arsenite (Whitnall & Bradford, 1949), and red spider *(Tetranychus telarius)* to selenium (Garman, 1950). Since the end of World War II and the introduction and extensive use of many new insecticides the pace of resistance development has markedly increased. Most well known to the layman is the case of the housefly *(Musca domestica)* resistance to DDT. This was first noted in 1946 (Wiesmann, 1947). Following the failure of DDT, the housefly rapidly developed resistance to each of the new chlorinated hydrocarbon insecticides used in its stead and is now highly resistant to lindane, dieldrin, chlordane, toxaphene, heptachlor, methoxychlor, and many others. Such resistance to numerous insecticides is called polyvalent or multiple resistance. Housefly strains now exist which are also resistant to the organic phosphates including parathion, diazinon, chlorthion, malathion, dipterex, para-oxon, DFP, and DDVP. In addition some strains show a resistance to pyrethrum and to Lethane (references to housefly resistance are too numerous to list here and can be obtained in a recent thorough review by Brown, 1958). The pomace fly *(Drosophila melanogaster)* has strains resistant to DDT (Tsukamoto et al., 1953), DFDT (Riemschneider et al., 1950), methoxychlor, lindane, chlordane, parathion, nicotine, DNOC (Kikawa, 1953), and cyanide (Bartlett, 1952). Many other species of flies have also developed resistance; however, the postwar roster of resistant species is by no means restricted to flies. We now have bedbugs *(Cimex lectularius)* resistant to DDT, methoxychlor, dieldrin, and chlordane (Mosna, 1954), German roaches *(Blattella germanica)* resistant to chlordane, lindane, DDT, TEPP, dieldrin, allethrin, diazinon, heptachlor, aldrin, pyrethrum, malathion, and Perthane (Bedingfield, 1952, Heal et al., 1953, Grayson, 1953, Fisk & Isert, 1953, Butts & Davidson, 1955, and others), at least nine species of resistant anopheline mosquitoes, many resistant culicine mosquitoes, several species of resistant aedes mosquitoes, four species of resistant fleas, as well as resistant body lice and numerous others (Brown, 1958). Hammerstrom (1958) states that 44 species of vectors and pestiferous insects are now known to be resistant. If resistant species of agricultural interest are added, the number is almost doubled. There are now resistant lygus bugs (*Lygus hesperus*) (Andes et al., 1955), wireworms *(Conoderus falli)* (Reid & Cuthbert, 1956), granary weevils *(Calandra granaria)* (Blackith, 1953) at least five species of aphids (Knipling, 1954, Michelbacher, 1954, Stern, 1958), a number of species of mites (Andres, 1958), and many others. These are just a few examples. At least as many as 75 resistant species in as many as 11 orders (including hymenoptera) can be tabulated by consulting a few of the numerous reviews of the subject (there are 43 reviews). A complete search of the literature would undoubtedly yield a higher count.

A few species appear unable to develop resistance in spite of frequent exposure. Examples are the false stable fly *(Muscina stabulans)* (Lewallen, 1952), horn fly *(Siphona irritans)* (Knipling, 1954), and tsetse fly *(Glossina spp.)* (Brown, 1958). Several others are also known.

In general, however, it appears that many species of arthropods are able to develop resistance.

Speed of Development of Resistance

Decker and Bruce (1952) reported on tests conducted on the development of resistance in houseflies and found that, in general, there is an initial period of generations of low resistance followed by a rapid rise to a very high plateau. This plateau is far beyond the level at which insecticides can be effectively used in control. Their data show that a 10 fold and 100 fold resistance (that is, increase in ratio of LD-50 to original) is attained as follows: To methoxychlor in 7 and 9 generations, to DDT in 13 and 16 generations, to gamma BHC in 15 and 32 generations, to dieldrin in 23 and 27 generations, and to chlordane in 30 and 33 generations. It should be noted how few generations are needed for the rise from 10 to 100 fold resistance. Plateaus reached were 200 fold resistance to methoxychlor in 12 generations, 800 fold in 18 generations for DDT, 500 fold in 46 generations for BHC, 20,000 fold in 35 generations for dieldrin, and 1500 fold in 40 generations for chlordane. They further found that a strain already resistant to one insecticide will develop resistance to others more rapidly than strains which have no resistance. A strain of houseflies with DDT resistance was found to develop twice as much resistance (1000 fold) to BHC in one half the time (25 generations) taken by an initially nonresistant strain. A similar effect was found when dieldrin was applied to DDT resistant strains. A strain developed for methoxychlor resistance was found to have concurrently developed dieldrin resistance without previous exposure to the latter. March and Metcalf (1949) found that houseflies exposed and resistant to chlordane had also developed 10 fold resistance without previous exposure to lindane, heptachlor, aldrin, dieldrin, and toxaphene. Resistance thus developed is called cross resistance and other examples of this are available in the literature. Simultaneous development of resistance to a number of insecticides by concurrent exposure is also possible.

Resistance to organic phosphates is also rapidly developed. Data given by March, Lewallen, and Metcalf (1956) show that houseflies can develop a 10 fold resistance to chlorthion in 5 generations and a 100 fold resistance in 14 generations. A 4 fold resistance to diazinon developed in 31 generations. March and Metcalf (1952) developed houseflies with a 5 fold resistance to parathion in 3 generations and a 9 fold resistance in 34 generations. A 30 fold resistance to synergized pyrethrins was developed in houseflies in 30 generations by Bruce and Decker (1950). These examples of the rapidity of development of resistance in houseflies are just a few of the many possible examples.

Rapid resistance development is not confined to houseflies. The German roach *(Blattella germanica)* is an excellent example of an insect which can rapidly develop resistance although it has a relatively low biotic potential. This roach was originally controlled by chlordane which was used extensively for roach control

after 1947. By 1952 resistance had developed and was reported by Bedingfield (1952). McDuffie et al. (1953), and Heal et al. (1953), found that these roaches were 200 times as resistant to chlordane as the nonresistant forms. This roach has only about two or three generations per year and adult females produce only about six capsules averaging 25 to 30 eggs each (Anon., 1958, Pettit, 1940). Thus in only 5 years and between 10 and 15 generations a 200 fold resistance to chlordane was developed under field conditions. Under laboratory conditions a 14 fold resistance to DDT was developed in 7 generations (Grayson, 1951) and further breeding to 12 generations increased resistance to 200 times (Cochran et al., 1952, Grayson, 1953). Malathion resistance has already been reported and it is expected that roaches will develop resistance to the other organic phosphates at least within 6 to 8 years if their use in control is continued. Another example of rapid development of resistance in a relatively slow breeding insect is that of the bedbug *(Cimex lectularius)*. This insect requires 41 to 58 days to develop to adulthood if well fed and female adults deposit 1 to 5 eggs per day for about two months (Girault, 1912). It developed DDT resistance after only 3 years of its use in barracks at Pearl Harbor (Johnson & Hill, 1948). Since that time resistance in bedbugs has been reported from many areas throughout the world (Brown, 1958).

Other examples of speed of resistance development are: Drosophila, 5 fold DDT resistance in 10 generations (Ogaki & Tsukamoto, 1953), and red spider *(Tetranychus telarius)* which had developed a high resistance to parathion by 1949, about a year after the introduction of this insecticide (Garman, 1950).

Development of resistance is not rapid in all cases, for example Chadwick (1954) found that a strain of houseflies took 100 generations to develop a resistance of only 15 times to DFP. Bartlett (1952) found that resistance of drosophila to cyanide developed very slowly. A number of other cases of slow development of resistance are given in the monograph by Brown (1958); however, the general pattern among insects is quite rapid development of resistance when continued selection pressure is applied.

It should be pointed out that under field conditions resistance may develop much more slowly than under laboratory conditions since selection pressure is not continuously applied by sufficiently frequent application of insecticides. In addition, under field conditions, the surviving resistant individuals intermingle and breed with nonresistant individuals from adjacent untreated populations. Once resistance has developed it is usually persistent.

Genetics of Resistance Development

Although mutations may occur and contribute to resistance development it appears that it is generally a matter of selection and recombination of genes initially present in the population. Mutations occur far to infrequently to account for the rapid development of resistance. Further evidence that it is a matter of selection of inheritable factors already present is provided by the fact that a variable population will develop resistance much faster than a uniform population of the same species. This has actually been demonstrated in strains of drosophila, in which highly inbred lines were found to be unable to develop DDT resistance, while more variable wild strains rapidly developed resistance. (Merrell & Underhill, 1956).

The method of inducing resistance in laboratory insect colonies consists of treating the population at a dosage sufficient to kill 80% to 90% of the individuals, breeding the survivors, and again treating and breeding each successive generation. As resistance begins to develop the dosage is increased to maintain the high percentage of kill in each generation. Under such selection pressure the chromosomes carrying genes contributing to resistance are concentrated in the survivors.

Populations do not develop resistance when sublethal doses are applied. Doses resulting in a low percentage mortality result in a marked reduction or even inhibition of rate of resistance development (Merrell & Underhill, 1956). Excessively high mortalities may also result in a slowdown of resistance development due to a loss of much needed genetic material and limitation of variability in the few survivors (King, 1954).

Potential Future Developments In The Insecticide Field

Due to the increasing seriousness of the resistance problem we can expect several developments in insecticide uses in the future including the following:

1. Increased dosages of presently used insecticides.
2. Increased use and development of new types.
3. Increased use of mixtures of insecticides having independent modes of action, analogous to use of "broad spectrum" antibiotics.
4. Increased use of synergists to increase toxic effect.
5. Partial reversion to previously used insecticides such as calcium arsenate and others.
6. Alteration of types used on any given area.

Any of these possible developments could be expected to increase hazard and loss of honeybees.

We can also expect increased use of area control programs by Federal, State, and County governments for pests which can be effectively controlled only on a wide area basis. Such control programs as for grasshoppers, fire ants, mosquitoes, Dutch elm disease, gypsy moth, spruce budworm, Mediterranean fruit fly, cherry fruit fly, and others come into this category.

Eventually it may be necessary to use selective insecticides which are toxic only to the particular pest involved while sparing parasites, predators, and pollinators. Work on such possibilities is in progress at the Riverside Campus of the University of California where tests are being conducted to determine materials having the greatest differential in toxicity to pests and their parasites. Prospects for development of specific selective insecticides by industry do not appear imminent; however, much work is being done on insect repellents and this may bring some relief to the beekeeper.

Possible Breeding Program

On a basis of the evidence now available we can conclude that it is quite probable that polyvalent insecticide resistance of a high magnitude can be developed in honeybees, although this can not be said with certainty until it has been extensively tried. We can also say that it is probable, but not certain, that this can be done in a period of 20 or less generations, a matter of about two years. The breeding methods of the honeybee are such that insecticide resistance would have little chance of developing unless a deliberate effort to select and breed for resistance is made.

There still remains a question of feasibility. A breeding program to accomplish this would require several large apiaries, an insecticide treatment laboratory, facilities for artificial insemination, highly trained personnel, and funds for continued operation. It would require extensive initial collection of the necessary heterogeneous stock, followed by breeding of large numbers of drones and queens, their treatment with various commonly used insecticides, crossing of the survivors, and repetition of the treatment on their progeny and so forth. Matings could be accomplished en mass by natural mating and in lesser number but more precisely by artificial insemination. Due to the parthenogenetic production and haploid nature of the drone no recessive characteristics would be masked and selection should therefore progress rapidly. Breeding of bees for high resistance to American foulbrood has been accomplished (Rothenbuler, 1958), it could most likely also be done for insecticide resistance.

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Editorial—

WHAT'S IN THE FUTURE?

I hope every Colorado beekeeper and honey packer read "I Dare You" in the American Bee Journal, April issue, by Harley K. Kittle, President of the Wyoming State Beekeepers Association. He sees what all leaders of our industry see—an industry decaying without reason. The solution is not impossible, as some cry. We in the West saw the wool industry faced with what seemed like an impossible situation; competition from cheaper imports and development of a myriad of synthetic fibers. They organized, accepted their problems and sought solutions. Their industry is profitable today and looking to a prosperous future. We in the honey industry are fortunate in that we have the machinery intact and on a slow move. All we have to do is accelerate it, by more uniform support of our associations.

The Federation's Check-Off Plan is not something untried—parallel plans have been successful for other industries. The plan is flexible in that we will get as much honey promotion as we pay for, but you cannot lose, as all money is going into honey promotion. Naturally the more beekeepers and packers participating, the more promotion we will get. All beekeepers should participate and require the packers to whom they sell their honey to participate also. Producer packers, large and small, bottle a great part of our nation's honey, and they benefit very directly from the Check-Off Plan. They should buy both producer and bottler stamps from Leslie Little— 831 Union St., Shelbyville, Tenn., for every can of honey they bottle, if they don't they are hurting themselves and not carrying their share of the promotion load.

It is evident that the cure for our ills cannot come entirely from the federal government or the U. S. Department of Agriculture. We have a tested formula, we lack only the ingredient of uniform support. Let's give liberally and start mixing the remedy for recovery. If you want to protect your investment, and believe in your industry, *stop crying* and *start trying*.

Wyoming's record of support to the Federation is an enviable one, but I am not ashamed of Colorado's. I do believe we can do better and distribute the load more evenly. It is a sad situation that there is such a wide difference in support among our states, when we all agreed on the common goal. It is up to the other states now, whether Mr. Kittle "eats Crow" or continues to "crow." Let us in Colorado pitch in and keep Wyoming's "Kittle" boiling.

G. H. Rose, President C.B.A.
(Colorado B Notes)

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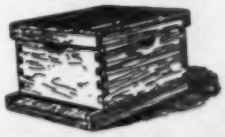

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Special . . . .

This is the report of an area pollination program and how it was administered. Such a plan is useful in many places and beekeepers can get together on it or individuals can serve a group of farms for mutual advantage to both sides.

POLLINIZATION AT GREENFIELD VILLAGE

by MARSHALL WHITCOMB

This article is about an attempt by a beekeeper (the writer) to sell pollination to an area formerly called Greenwood Township, now incorporated as Greenfield Village. Most townships in Hennepin County are now villages. This is dairy country. Most farms have from 25 to 50 cows and most of the income is from milk or sale of animals. The area was part of the big hardwood woods area of Minnesota. The land was wrested from the forest by hard labor. The maple, elm, ash and hackberry became log houses and barns. Some became ties for railroads or just plain cordwood. The basswood went to the box factories. There are some woods left but not much basswood. As you know, basswood is a good source of nectar and makes very fine honey.

Since World War II and the resulting building boom, the cutting and stripping pastures of sod has become a big industry. You see what the bees with the aid of the cows do is to make the white Dutch clover come over the nice green pastures. Every day tons and tons go rolling toward the Twin Cities. Some even to Milwaukee. With the basswood gone and the white Dutch going fast, I must either move or try to sell pollination. The Department of Agriculture has consistently recommended to beekeepers to turn to pollination as an added source of income. There are no large producers in the area so the most logical one to sell pollination to is townships.

Jacob Kettenacker is the Clerk of Greenfield Village. I went out to talk to him about the supply of pollinating bees in Greenfield Village. One of the things necessary for good permanent pasture is a good supply of pollinators to set the seed on the white Dutch clover. The result of our conversation was to "talk with the rest of the Council. I think we can do something." I talked to the rest of them and we had a meeting. I went there loaded with information to tell them why they needed pollination. I got the surprise of my life. They told me why they needed pollination. They told me what they wanted was a dependable supply of pollination—one that they could depend on year in and year out. There are about 27 square miles in their village. I told them by placing three outyards of 25 colonies each, each yard to service nine square miles, would take care of the area. They were told that this was minimum pollination and not to expect crops of alfalfa or red clover seed. All would get some benefits, yet none greatly. I was ordered to draw up a contract, and, if legal, they would sign it. I contacted the attorney for the Village, Mr. Forsberg, and explained what was wanted. He listened, asked questions and decided to ask the attorney general of the State to give a ruling to see if it was legal to spend public funds for such purposes. About 15 days later the ruling came through. Not legal.

I had moved the bees in. They were on their stands as agreed, but it was too late to move them out.

I went to Detroit Lakes to talk to

Greenfield Village Council. They wanted pollination and wanted to pay for it.

Most farms have 25 to 50 cows.

Greenfield Village yard No. 1, unwrapped in the spring.

Yard No. 2, also unwrapped.

the Minnesota Beekeepers summer meeting. I went to Minneapolis' winter meeting and talked and had asked for help to get legislation making it possible to sell pollinization to units of government. A marketing act bill was all drawn up and ready for the 61st session of the Minnesota Legislature. I was told one bill was about all we could expect to get through in one session.

The marketing act bill ran into trouble. Just about this time I received my copy of the American Bee Journal and it was all about pollinization. I felt that with the information in that pollinization issue that a bill could be drawn and passed. I went to Saint Paul and talked with Representatives Jude, Swenson and Langley, and later with Senator Welch. Senator Welch drew up a bill based on information I had given him. The bill did not get printed in time to make the dead line for new bills. This bill is not as I had thought of a bill. I was informed that to enrich individuals with the use of public funds was against the State Constitution, whereas to restore something that was lost or to protect natural resources would be legal.

A BILL
FOR AN ACT RELATING TO POLLINATORS.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF MINNESOTA:

Section 1. (19.41) The destruction of native pollinators due to the increased use of insecticides, intensified agriculture, and other practises is a matter of state concern. The destruction of these pollinators and the consequent reduction of acreage of grasses, herbs, and shrubs depending upon native pollinators for reproduction deprives wildlife of necessary food and cover and removes from the soil plant life necessary to prevent erosion by wind and water. It is the public policy of this state to preserve and restore native pollinators whenever possible, and, where necessary, to provide pollinators to replace or supplement the native pollinator population.

Sec. 2. (19.42) Subdivision 1. Any municipality may, by contract, provide pollinating bees to replace or supplement the native pollinator population whenever the municipality considers such action necessary, subject to the following conditions:

(a) The municipality may contract for no more than three colonies per square mile, and may require the contractor to space the colonies in yards so as to care for an area of nine square miles whenever practicable. The municipality may specify the location of colonies and reject proposed locations.

(b) The colonies shall be kept on the location throughout the year, and the colony strength shall be inspected by the municipality on June 1 and September 1 of each year.

(c) The contracting beekeeper shall assume responsibility for providing equipment, supplies, labor, management, and liability for loss of the pollinating bees. The contracting beekeeper shall maintain the bee yard in accordance with accepted standards of beekeeping.

(d) The contract may provide payment not to exceed $5 per colony per year, which payment may be made on July 1 and October 1 of each year. Contracts may be renewed annually before November 1 of each year.

(e) The municipality may adopt such other rules and regulations as necessary to carry out the purposes of sections 1 and 2.

Subd. 2. For the purposes of this section "municipality" means any city, village, or town; and "yard" means colonies located at places other than the apiary.

Sec. 3 (19.43) No municipality, its agents, or contractors shall use any toxic spray or insecticide which destroys the bee pollinators contracted for under the terms of section 2.

There may be many differences of opinion as to whether this bill with its limitations will or will not do. We can only guess as to the level of the native pollinators. Some areas had lots and some not so many. This is a new field, and I will not say that this bill is perfect. We must expect to make a few mistakes, but I do say that some people some place should try it.

Concentrated pollination is important but minimum pollination is also very important. We may find that minimum pollination is the real "big job" of beekeeping. Honey is nice but pollinization we must have.

Minnesota

Meetings and Events

Midwestern, Kansas City, Sept. 13

The Midwestern Association will hold its regular monthly meeting in the Garden-Apiary of Mr. and Mrs. Walter Hill, 8440 Jarboe, Kansas City, Mo., at 2:30 p.m. Sunday, September 13.

Carroll L. Barrett
Secretary

Middlesex County (Mass.) Lexington, Sept. 26

The Middlesex County Association will hold their last outdoor meeting of the year Saturday, September 26 at the home and apiary of Mr. and Mrs. Chester McInnis, 521 Marrett Road, Lexington at 2 P.M.

At this meeting there will be a drawing for the club hive and also additional items for consolation prizes. The lucky winner will be very happy to receive this year's hive because it is strong, well behaved and has a large supply of honey.

M. Southwick,
Corres. Sec.

Central Jersey, Lakewood, Sept. 12

On Sept. 12th, 1:30 p.m. there is to be an important meeting at Raymond Dix's home, Central Ave. Lakewood. Milton Stricker, an authority on pollination and beekeeping will speak on fall management for wintering. Beekeepers are to display their pet gadgets. Visitors welcome.

Forrest Campbell
Secretary

New Jersey Association Vincetown, Sept. 19

On Sept. 19th, 1 p.m., New Jersey beekeepers are to be given a fine treat at Bud's Bog, near Vincetown, on Retreat Road, three miles east of Route 206. For the first time New Jersey beekeepers will have the chance to see the harvesting of cranberries by hand and by machine and to see the canning of the berries. Visitors are welcome and those who have lunch should come early to picnic under the trees.

Forrest Campbell
Membership Chairman

Southern States Federation Valdosta, Georgia, Nov. 9-10

The annual meeting of the Southern States Beekeeping Federation will be held in Valdosta, Ga., on Monday and Tuesday, Nov. 9-10. Valdosta is located in south Georgia on US 41, twenty miles from the Florida line. Valdosta has excellent transportation facilities, including the Southern and Atlantic Coast Line railroads, Greyhound and Trailway Bus Service, and Southern and National Airlines.

Valdosta is located in the center of the gallberry and tupelo honey producing area, as well as the package and queen producing area. The Stephen Foster Memorial at White Springs, Fla., and the Okefenokee State Park, near Waycross, Ga., are a short distance from Valdosta. There are two hotels and nine excellent motels, as well as numerous modern restaurants in the city.

The program committee has planned an excellent program, which includes numerous outstanding bee culture officials and speakers. There will be special entertainment for the ladies.

The convention will be held in a Convention Hall of the Ashley Oaks Motel, located on N. Ashley St., which is US 41, and the Ashley Oaks Motel is the official headquarters for the Convention. All beekeepers are invited, so plan to attend this meeting. If you want further information write the Secretary, A. V. Dowling, 114 E. North St., or the Valdosta Chamber of Commerce.

A. V. Dowling, Sec.
Southern States Beekeeping Federation.

Regina Meetings November 20-26

1959 is a big year for beekeeping in Saskatchewan. The Provincial apiarists from across Canada are meeting in Regina on the 20th and 21st of November. On November 24, 25 and 26 the Canadian Beekeepers Council is meeting in Regina. These two meetings will attract beekeepers from all over Canada. You are invited to attend the meetings of the Canadian Beekeepers Council.

National Federation

Going to Phoenix for the Federation meeting in January? If so, you can obtain reduced rates at the Sea Breeze Motel if you contact Ralph Stone at Superior Honey Company. If enough are interested a saving can be made.

Western New York Honey Producers

About 100 people attended the Western New York Honey Producers Association annual picnic and meeting Sat. Aug. 1 at Akron Park. Dr. Dyce, of Cornell, was the guest speaker. He told of his trip to Australia and New Zealand during the past year.

The following men were elected to these offices:

Pres., Oran Krause, Griener Rd. Clarence; 1st. Vice Pres., George Norris Rt. 5 Stafford; 2nd. Vice Pres., Earl Mann, Locust St. Lockport; Sec.-Treas., Paul Lang, Chestnut Ridge Rd. Gasport.

Paul C. Lang
Gasport, N. Y.
Secretary

Cook Dupage (Illinois), Palatine Sept. 20th

The Cook DuPage Association will hold its next meeting Sunday, September 20th. at the apiary of The Mieneke Honey Farm, Golf Road and Old Plum Road, Palatine. Meeting will start at 1:30 P.M. Mr. Mieneke will have a very interesting program. All beekeepers and all interested in bees are welcome. Pot luck supper at 5 P.M. For information call Fulton 5-0153.

A. J. Smith,
Director

Eastern Apicultural Meeting Cornell University

One of the most enthusiastic beekeepers meetings, and likely one of the largest in years, was held at Cornell University August 6-7-8, when the Fifth Annual Meeting of the Eastern Apicultural Society convened. Cornell University itself, and more particularly Dr. E. J. Dyce and Dr. Roger Morse and their staff, made available excellent facilities, and combined to provide a stimulating program. The Cornell Student Union served as a central point for the many activities, and an excellent cafeteria within this building made it possible to obtain quick service and delicious food at mealtime.

Over 425 beekeepers and their wives were in registered attendance, and it was conservatively estimated that some 100 more attended one or more of the sessions without the formality of registration. Banquet tickets, for the Saturday night conclusion

of the program, were sold out by Friday, with over 315 attending. Many were turned away for lack of space. Even the weatherman smiled on the affair, providing cool temperatures, and an excellent opportunity to attend the trips to see the Apicultural facilities of Cornell and the several local sites of interest to beekeepers.

The program, in addition to guided tours of the campus and surroundings, include a honey show, gadget display, book booth, and exhibits of beekeepers supplies. Speakers, as well as those attending, came from far and near. They included Dr. C. L. Farrar, Head, U.S.D.A. Bee Culture Laboratories; Dr. John B. Free of Rothamsted Experiment Station, England; C. C. Dadant of Hamilton, Illinois; Prof. Robert S. Filmer of Rutgers University, New Jersey; Dr. M. V. Smith of Ontario, Canada; Dr. E. J. Dyce of Cornell; Prof. G. F. Townsend of Ontario, Canada; John Root of Medina, Ohio; Dr. J. W. White of U.S.D.A. Philadelphia; and R. H. Anderson of South Africa.

Herbert O. Boettcher, President of EAS, presided, and Mrs. Mary Geisler Phillips, Professor Emeritus of Cornell, was Toastmistress for the banquet. Dr. Herrell F. DeGraff of the Cornell Graduate School of Nutrition presented the banquet address.

Before adjourning, Paul Holcombe of New Jersey was elected the new President of EAS, Frank Peterson of New Jersey the Vice President, Mrs. Yates of Connecticut the Secretary-Treasurer, with Harold Kelly of Maryland and Maxine Manchester of Vermont the remaining two on the Board of Directors. The 1960 meeting site was selected as Rutgers University in New Brunswick, New Jersey, on the dates of June 23-24-25. Another innovation will be offered next season, when a beginners' clinic will be provided for several days preceeding the main meeting, also at Rutgers.

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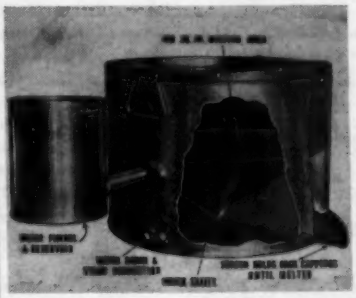

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The Federation

Secretary Joseph O. Moffett
15 So. College Ave., Fort Collins, Colorado

Executive Committee meets.

The executive committee of the Federation met July 13 at the Auditorium Hotel in Denver. The main topic was the act to enable honey and other bee products to be under a marketing order.

Enabling act supported unanimously. The committee voted unanimously to support the present bills before Congress concerning the enabling act. These bills are Senate Bill *1989* and House Bill *8269*. If this act passes, honey would not be under a marketing order. The industry would have to vote favorably on such an order after a series of hearings. Marvin Webster of the USDA told how orders have worked wonders for other specialty crops. Honey is the only specialty crop in their branch selling below 100% of parity, said Marvin. An order could allow the industry to stabilize the supply of honey, raise money to educate people on its uses, and restrict imports.

Sustaining members. The critical financial position of the Federation was discussed. The committee voted to list as sustaining members all beekeepers contributing $50.00 or more to the Federation. A special effort will be made to obtain $50.00 members.

One of the reasons for the Federation's poor financial condition is the loss of industry support. At one time two industrial groups contributed a total of $6,000 a year. This has dropped to $1,000 a year now.

The Federation lost over $3,000 last year and started this year in the red. So far this year over $1,000 of the loss has been recovered. (If everyone pays his dues and encourages his neighbor to do so, we can go to Phoenix at least even.)

Omaha selected for 1961. The committee voted to hold the annual convention in Omaha, Nebraska, in 1961, at a date to be determined later. The 1960 convention is January 10-16 at Phoenix, Arizona.

Insurance discussed. Dwight Lambert, an insurance broker from Greeley, Colorado, discussed group insurance. His company, Ohio National Life Insurance Company, would offer group life, hospitalization, and accident and health if 100 or more members would join any given plan. The committee decided to consider this further at Phoenix.

Write your congressmen.

An all-out effort is being made to pass the enabling act, Senate Bill*1989* and House Bill *8269*. Many feel this is the only solution to our critical marketing orders. Everyone is urged to write his congressman concerning this.

Join Federation.

Members are still badly needed by the Federation. You can join by sending 4c per colony to our office (minimum dues $3.00). Help your fellow beekeepers advance your industry. Join today!

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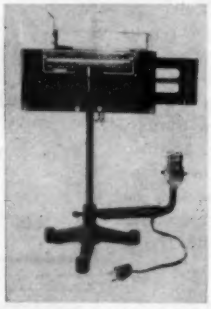

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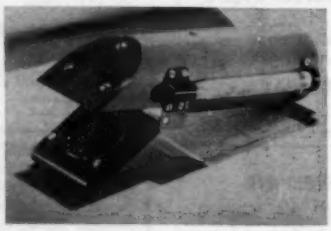

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WHITE CLOVER Section comb honey, Lewis Struthers, Red Lake Falls, Minnesota.

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WANTED—Extra white and light amber honey. Let us ship you the containers. Sell us your honey for CASH on delivery. The Hubbard Apiaries, Manufacturers of Bee Supplies and Comb Foundation, Onsted, Mich.

HONEY AND Beeswax wanted. Melford Olson Honey Co., 3201 Douglas Drive, Minneapolis 22, Minnesota.

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PRODUCERS OR PACKERS interested in packing honeycomb sections for export to England please write full details, quantity, weight, price etc. to Ratcliff Bros. (Honey) Ltd. Great Horton, Bradford 7, Yorkshire, England.

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PUBLIC AUCTION: October 8, 12 A.M. 50 hives bees, 3 bodies, heavy honey, lots equipment, new and used. Collectors items. Harold L. Nebel, High Hill, Mo.

FOR SALE: 20 cases comb honey. Wanted 20 or 30 frame radial extractor. H. Sandberg, 170 Walnut St., Galesburg, Ill.

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—Crop and Market—

by M. G. Dadant

1959 TOTAL CROP

There has not been a great deal of change since our report in the August issue. For the most part, heavy producing sections have continued heavy. Some of the eastern seaboard, including Georgia and the Carolinas, extending through Tennessee and Kentucky into southern Arkansas and Louisiana, have continued to be "in the doldrums" with considerable less crop than a year ago. This also is true of southern Illinois and southern Missouri, north Nebraska and through South Dakota and southern North Dakota, as well as some sections of Montana.

Colorado is hard hit as is New Mexico and Arizona. Idaho has less crop than last year. Nevada and Utah are short. With the most extreme drouth since 1877, California cannot have more than 25 per cent of last year's harvest. While the eastern provinces of Canada appear to have a slightly better crop and extending into Manitoba, as one goes west crops are reported smaller than last year.

We do not see how the total crop can be as great as last year due to these deficiencies. It is true that the central western areas extending through Indiana, Ohio, Pennsylvania and New York are particularly fortunate this year. The crop in Massachusetts and Connecticut seems to be short. On the whole we would expect the crop to be at least 10 per cent below what it was last year, the final outcome depending on the fall crop.

CROP TO COME

Of course, we must consider the possibilities of a crop to come. The Intermountain areas are dry and this may have some effect on the late alfalfa with a shortage of irrigation water. This area extends into Idaho, Utah, and Nevada, and California still is dry at this writing. Manitoba, Saskatchewan, and British Columbia are dry and consequently the crop is short.

However, the central western areas have had copious rains and this has improved the possibility of a fall crop. This refers to areas where a heartsease crop is ordinary, and extends into the goldenrod areas like New York, and as far south as Georgia and Florida. There is the possibility that spraying of weeds in corn has reduced the amount of heartsease, but we doubt this very much.

MOISTURE

As mentioned above, moisture has been extremely satisfactory in the central areas and the southern parts of the Plains States, extending into the Southeast and even into the Northeast. This is not to say there is an excess of moisture or that the deficiency of subsoil moisture has been made up. But if conditions continue to improve as they have been doing during the past six weeks, there is quite a possibility that we may go into the fall season with not only enough fall bloom to put colonies into excellent shape for winter, but also to put spring clover plants in equally good shape.

BUYERS

Buyers have not been particularly active and, in such instances where they are making offers, it is at prices ranging from 10½ to 12 cents a pound. On good white honey we would assume that prices would probably be in the neighborhood of 1 cent lower than they were a year ago, before the "drop" had commenced.

On amber honey, the situation is different. Although honey is well cleaned up in California, there still is a lot of amber honey available. Offers on it have been anything but good due to the fact that there seems to be so much fine white honey on hand. We have heard of prices as low as 5 cents a pound in New Mexico, and ranging from there on up to 7, 8 and even 9 cents for amber honey f.o.b. producer's shipping point, with the average around 8 cents.

SUMMARY

On the whole, the crop has been a disappointment in the West and the Southeast. It has been better in Texas and northward through Nebraska; it is better throughout the Central West and the Northeast. We would assume that this means that the proportion of amber honey this year will be considerably less than last year unless a fall crop develops. There will be no fall crop in California and other western areas if the moisture conditions do not improve.

Naturally, the starting price for honey will be partly determined by the closing price for 1958 honey, but we do look for a gradually stiffening market. In the Southeast the price already has advanced 1 cent. In California, the market has stiffened particularly on white honey which will have to be imported into the state. With their fine marketing program out there, the demand for honey is going to continue, or even increase, and this year's California crop is low compared to the amount that is needed. We have heard of 12 cents offered f.o.b. Denver and this honey apparently was to go to the West Coast.

We reiterate our suggestion in the August issue that 12 cents for good white honey should be a minimum standard this year. Market conditions should be good if producers get busy in promoting the sale of honey and if they support fully the Check-Off plan. We would urge packers to make automatic deductions for the Check-Off plan on all purchases of honey. If all packers do this, it can mean great good for the honey industry, particularly since the largest cooperative in the country is contributing their share to see that the Check-Off plan works.

All in all, it looks like a little less total crop than last year, most of it of far better quality, not enough amber to make great difficulty, and practically all of the 1958 white honey cleaned up. The volume of white honey this year is in areas where there not only will be a great amount of retail sales, but where it likely can be held better than in the hands of some large producers who have needed to sell their honey at low figures to obtain ready financing. We look on the fall and winter optimistically.

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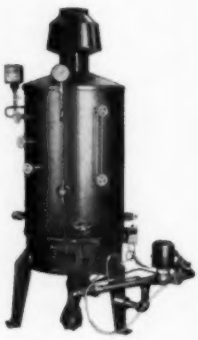

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